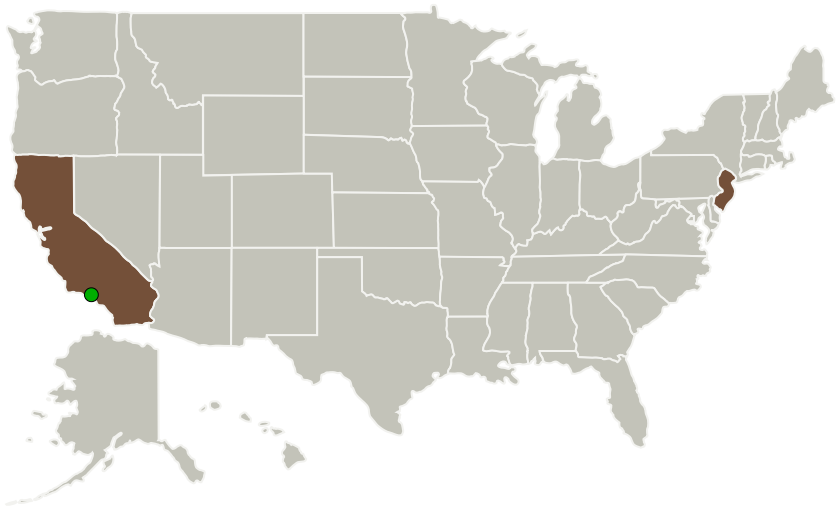
Atomic Interferometry, Phase I

Completed Technology Project (2014 - 2014)

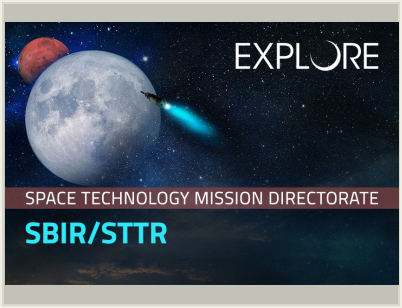
Project Introduction

Vertical cavity surface emitting lasers (VCSELs) is a new technology which can be used for developing high performance laser components for atom-based sensors technology. The narrow linewidth of VCSEL emission combined with good polarization extinction ratio and large spacing between the longitudinal modes, which makes them relatively immune to mode hopping, and their high reliability make them uniquely suited for this application. NASA requires high power (1W) diode lasers at certain alkali atomic lines. Princeton Optronics proposes an approach to develop such lasers for NASA in this SBIR using the VCSEL technology. In phase I, we would develop the specifications for the lasers and design and fabricate the devices for one wavelength and demonstrate feasibility for developing high power lasers in phase II.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
Princeton Optronics, Inc.	Lead Organization	Industry	Mercerville, New Jersey
Jet Propulsion Laboratory(JPL)	Supporting Organization	NASA Center	Pasadena, California



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Primary U.S. Work Locations	
California	New Jersey

Project Transitions

June 2014: Project Start

December 2014: Closed out

Closeout Documentation:

- Final Summary Chart*(https://techport.nasa.gov/file/137764)*

Images

Briefing Chart
Atomic Interferometry, Phase I
(https://techport.nasa.gov/image/131648)

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Princeton Optronics, Inc.

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

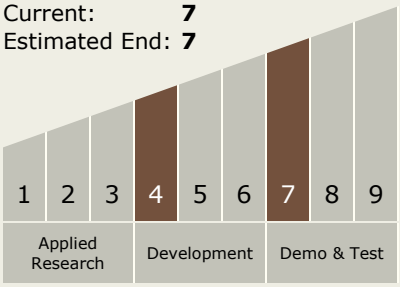
Carlos Torrez

Principal Investigator:

Jean F Seurin

Technology Maturity (TRL)

Start: **4**
Current: **7**
Estimated End: **7**



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Technology Areas

Primary:

- TX08 Sensors and Instruments
  - TX08.1 Remote Sensing Instruments/Sensors
    - TX08.1.5 Lasers

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System